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REMARKS/ARGUMENTS

Upon entry of this amendment, newly added Claims 17-33 would remain in this application. Claims 1-16 would be canceled.

New Claim 17 clarifies in step (e) that the soy-containing cheese product comprises a blended product of deflavored soy material and a natural or process dairy cheese base composition (page 15, lines 17-19; page 27, lines 27-31; Examples 11, 13, 14). Otherwise, new Claim 17 generally corresponds to the content of claim 1 at the time of the prior final Office Action of July 27, 2005. The requested amendment to claim 1 submitted in Applicants' Amendment After Final filed November 29, 2005, which obtained entry via Applicants' RCE filed December 14, 2005 following denial of its entry in the Advisory Action of December 7, 2005, is not currently at issue in view of the above cancellation of claims 1-16 and introduction of claims 17-33.

New Claims 18 and 19 recite percent range amounts of the deflavored soy protein present in the soy-containing cheese product (page 15, lines 19-21).

New Claim 20 recites a soy protein content of about 2.5 to about 8.0 g per about 30 g single serving size of the soy-containing cheese product (page 15, lines 23-25; describing range up to about 8.0 g soy protein/about 30 serving, and preferred range of about 2.5 to about 6.5 g soy protein/about 30 g serving). *Ex parte Blaser*, 194 USPQ 122 (CCPA 1977) (range of 1.2 to 1.6 is supported where 1.6 is express upper limit and examples encompass range of 1.2 to 1.5).

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New Claim 21 is supported by original claim 2.

New Claim 22 is supported by Examples 11 and 14.

New Claim 23 is supported by Example 13.

New Claims 24-28 are supported by original claims 3, 5, 6, 9 and 10.

New Claims 29 and 30 are supported in the original specification (page 15, lines 14-16; Examples 11, 13).

New Claims 31, 32, and 33 are supported in the original specification (page 15, lines 4-7).

No new matter has been introduced.

Reply to Claim Rejections under 35 U.S.C. § 102(b)

1. Claims 1-10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Youngquist (U.S. Patent No. 4,211,694).

New independent Claim 17 recites, *inter alia*:

(b) solubilizing the soy proteins by adjusting the aqueous composition of (a) to a pH in the range of about 9 to about 12 and releasing the flavoring compounds;  
(emphasis added by underlining)

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As explained and demonstrated through examples in the present specification, the soy material must be *solubilized* in an aqueous alkaline environment of about 9-12 pH in order to attain significant removal of undesirable flavoring compounds (page 11, lines 3-8; Example 1).

The proteins in the soy material of the present invention are solubilized at the alkaline pH range as claimed prior to filtration so that the protein shapes can be changed (e.g., unfolded) to expose otherwise hidden, bound or encapsulated hydrophobic flavor compounds for removal (page 11, 10-14).

A cheese product containing soy material that has not been deflavored using such solubilization treatment as presently recited in combination with the other process steps will be distinct from products of the present invention.

Youngquist fails to teach or suggest cheese products of the present invention in several respects.

Youngquist describes deflavoring vegetable seed materials, especially oleaginous seed protein material, using a ternary single-phase solution or solvent system of water, electrolyte, and a carbohydrate in a solution having a water activity of less than about 0.90 (abstract; col. 7, lines 45-47). After mixing, the oleaginous seed material is separated from the water/electrolyte/ carbohydrate ternary solution by free draining, filtration, centrifugation, or combinations thereof (col. 7, lines 1-7).

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Importantly, Youngquist requires use of an electrolyte in the "deflavoring solution" to *reduce* the water activity, hydration, and solubilization of the seed proteins so that the treated protein can be "efficiently recovered without resorting to precipitation techniques" (col. 5, line 62 to col. 6, line 14). In fact, Youngquist states that "[t]he protein remains largely undissolved" (col. 6, lines 1-2). The claims of the present invention require solubilization of the soy proteins.

Youngquist alleges that mechanical attrition operations such as "flaking, grinding, or comminution" may be used to expose a large surface area of the seed particles to the deflavoring solution and that a large exposed surface area will "speed the deflavoring process" (col. 5, lines 1-4).

However, this assertion by Youngquist ignores the technical reality of the soy protein at the molecular level. The soy protein is folded and the like in its native state so as to hide or protect many flavor compounds from meaningful access for removal. Mechanical attrition alone of the bulk soy material can not be technically expected to resolve this problem.

By failing to solubilize the soy seed material prior to ultrafiltration as presently claimed, Youngquist can be technically expected to leave a significant amount of "hidden" flavor compounds behind in the protein after the ternary solvent treatment.

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New Claim 17 also recites "passing the pH-adjusted aqueous composition of (b) adjacent an ultrafiltration membrane having a molecular weight cutoff up to about 50,000 Daltons, while maintaining the pH in the range of about 9 to about 12, under suitable ultrafiltration conditions wherein the flavor compounds pass through the membrane, thereby deflavoring the soy material and retaining substantially all of the solubilized soy proteins; ... (emphasis added by underlining).

As shown in Example 1 of the present specification, the provision of the above-noted recited pH range values during solubilizing and ultrafiltration is essential for obtaining the desired deflavoring of the soy protein material. That is, soy protein material that was solubilized and then dialyzed at pH values in the range of about 9 to about 12 for each operation had significantly improved taste and aroma as compared to a comparison sample dialyzed at pH 6.7.

As explained in the instant specification, the separation of the lower molecular weight flavoring compounds from the soy proteins using the ultrafiltration membrane under the selected operating conditions, as recited in new claim 17, improves the flavor and color of the retained soy proteins and associated solids (instant specification: page 3, lines 15-20; page 9, lines 11-15).

Therefore, the "deflavored" seed material, and consequently any "cheese spread" products incorporating same, as suggested by Youngquist, can be expected to differ significantly from those of the present invention.

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New independent Claim 17 also recites, *inter alia*:

"(e) blending the deflavored soy protein material with  
a natural cheese or process cheese base composition,  
providing a soy-containing cheese product ..."  
(emphasis added by underlining).

In the Advisory Action dated November 2, 2005, it stated,  
*inter alia*:

... Applicant requests citation of cheese with respect to  
Youngquist. The soy protein material therein is used in a  
cheese-spread product (Example 2). ...

Advisory Action of November 2, 2005, Continuation of 11.

Applicants' also note that the sole mention of a cheese type  
product by Youngquist is a reference to "meat analogs in the form  
of ... vegetable-based meat in cheese type-spreads ..." (col. 8,  
lines 42-49).

In this respect, Youngquist is understood to refer to meat  
analogues or vegetable-based meat added as intact clumps and the  
like to a separately-made cheese spread.

Youngquist does not address discrepancies in texture that  
can be expected as between the meat analog and cheese spread. In  
fact, Youngquist fails to provide any specific guidance or  
working example of the "cheese-type spreads."

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In particular, Youngquist fails to disclose any amount of the "vegetable-based meat" that may be used in any such "cheese-type spreads" which will still allow for desirable organoleptic properties to be provided and maintained in the product and also not impair processing and functionality.

By contrast, cheese products of the present invention comprise deflavored soy material blended with a natural or process cheese based composition as part of the cheese making process (e.g., see Examples 11, 13, 14). The deflavored soy material component can thus be more uniformly dispersed and distributed throughout a natural or process cheese medium effective to lessen or avoid adverse textural impacts attributable to the soy component incorporated into the cheese product.

Additionally, new Claims 18-21 further recite range amounts of deflavored soy protein and soy protein that can be advantageously used in process cheese or natural cheese while maintaining organoleptic properties consistent with those cheese product categories.

Example 11 (15.5% deflavored-SPI or deflavored-SPC), Example 13 (13.7% deflavored-SPC), and Example 14 (10.4% deflavored soy protein for each "Deflavored" formulation) in the instant specification demonstrate via actual cheese product preparations that process and natural cheese products can successfully incorporate relatively significant amounts of the deflavored soy protein made according to the present claimed invention without adversely affecting or impairing processing, functionality, or organoleptic attributes such as flavor, color and odor.

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Youngquist provides no such comparable enablement for the "cheese-type spreads" mentioned at col. 8, line 49 thereof.

Therefore, for at least these above reasons, Youngquist does not identically disclose any of Claims 17-33, and, therefore, it can not anticipate any one of these claims.

2. Claims 1-10 also were rejected under 35 U.S.C. § 102(b) as being anticipated by Peng (U.S. Patent No. 4,105,803).

In the Advisory Action dated November 2, 2005, it states, *inter alia*:

... Applicant argues that Peng does not provide certain method steps as set forth in the instant claims (e.g., ultrafiltration). Although the processing is different, it is not been demonstrated that the instant product as recited would differ from that set forth in Peng. In other words, Peng may be removing flavor components by heating and vaporizing same as aroma.

Advisory Action of November 2, 2005, Continuation of 11.

Applicant notes that Peng describes a tofu-type curd product, and not a dairy cheese product such as natural or process cheese.

Peng admixes heat-treated soymilk and cheese whey in predetermined proportion, and the resulting mixture is then coagulated with select precipitants to derive a "white, soft gelatinous mass ... having a desirable bland flavor" (col. 5, lines 19-29, abstract). In particular, Peng mixes preboiled soybean milk with "a sweet cheese milk whey component" (i.e., "a direct cheese-whey by-product" or "cheese whey concentrate



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material"), and the resulting mixture is subjected to co-precipitation procedures to form a "soybean-cheese whey curd" or "tofu-like curd" (col. 5, line 47; col. 6, lines 38-59; col. 7, lines 42-44; col. 8, lines 5-7; col. 10, line 23; col. 11, line 54).

That is, Peng is understood to make tofu-type curd in the presence of whey protein. Technically speaking, whey protein does not coagulate; nor would it be expected to do so during production of Peng's tofu-type curd product.

As explained by Peng, the soybean-cheese whey curd product of that reference is a low viscosity, high moisture content pudding-like substance. Peng describes the whey bean curd product as having a "semi-soft pudding like texture" useful as a bakery product filling or flavored pudding (col. 4, lines 16-21; col. 5, line 25).

By contrast, natural or process cheeses, as those terms are ordinarily understood in the field, are technically understood to relate to dairy cheese compositions made with casein. Casein coagulates in the making of dairy cheeses. This and other related chemistries occurring during cheese manufacture increase the viscosity and/or stiffness of the resulting cheese products. Dairy cheeses, such as natural or process cheeses, also contain moisture levels that are sufficiently low that the product can be formed into a discrete self-supporting structure or structures at room temperature.

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The inventive cheese product is quite different and distinct from Peng's tofu pudding in terms of physical characteristics.

For instance, the soy-containing natural or process dairy cheese products of the present invention implicitly have greater stiffness and lower moisture content than the tofu puddings of Peng.

Unlike present claims 18-21, Peng also fails to teach or suggest any range amounts of deflavored soy protein and soy protein that may be advantageously used in process cheese or natural cheese production while maintaining organoleptic properties consistent with those cheese product categories.

Regarding instant claims 29-33, Peng teach a soy "tofu-type curd", and not a deflavored soy protein material concentrate or isolate as recited in present claims 29-30, nor a *solution* or *solid form* of deflavored soy bean protein material as recited in present claims 31-33.

In view of at least these reasons, Applicants submit that Peng does not identically disclose any of new Claims 17-33, and, therefore, it can not anticipate any one of these claims.

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CONCLUSION

In view of the above, it is believed that this application is in condition for allowance, and notice of such is respectfully requested.

Respectfully submitted,

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